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By-Burmeister, Lou E.

Final Vowel-Consonant-e.

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The utility value of the final vowel-consonant-e phonic generalization was examined using 2,715 common English words. When the vowel was defined as a single-vowel, the consonant as a single-consonant, and the final e as a single-e the generalization was found to be highly useful, contrary to other recent findings. Using the total sample of 2,715 words the utility level of this generalization was 73.7 percent. For a, e, i, o, u and y, it reached the utility levels of 78.9, 67.4, 61.1, 85.6, 78.3, and 100 percent, respectively. The groups which composed the three largest exceptions were (1) a-e = i (as in furnace, damage, and private), (2) e-e = a (as in there), and (3) i-e = i (as in live and captive). Primary level words which are exceptions to the generalization are listed. It is recommended that these words be taught as sight words at the primary level and that groups of exceptions be taught at a later time as the need arises in reading materials. Tables and references are included. (Author/CM)

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Final vowel-consonant-e

The utility value of the final vowel-consonant-e phonic generalization was examined using 2,715 common English words taken from the Hanna, et al. (1966) publication. When the vowel was defined as a single-vowel, the consonant as a single consonant, and the final e as a single e, the generalization was found to be highly useful, contrary to other recent findings. There are two groups of words which compose the majority of exceptions to the generalization.

by Lou E. Burmeister

The University of Texas at El Paso

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### Final vowel-consonant-e

For several years reading experts and classroom teachers have been questioning the value of teaching the final vowel-consonant-e phonic generalization. Clymer (1963), Burmeister (1966), Bailey (1967), and Emans (1967) submitted evidence indicating that the generalization: "When there are two vowels one of which is a 'final e' the first vowel is long and the 'e' is silent," was valid in the materials they sampled about 60 per cent of the time. Clymer, Bailey, and Emans also examined the following generalization, "In many two and three syllable words, the 'final e' lengthens the vowel in the last syllable." They found this to be true about 44 per cent of the time. Oaks (1952) looked at "When a stressed syllable ends in 'e,' the first vowel in the syllable has its own 'long' sound the 'final e' is silent. She found this to be true 62 per cent of the time.

### Purpose

The purpose of the present study was to examine a similar, but more restricted, generalization. The generalization is: "When a word ends in a vowel-consonant-e, the e is silent, and the vowel has its own long sound."

The vowel was defined as a single-vowel, never a vowel-pair. Thus, words such as cake, these, and office were included, but not words such as house, naive, cheese, peace, or abbreviate.

The consonant was defined as a single consonant or a consonant digraph (sh, ph, ch, th), but never a double consonant or consonant blend. Thus words such as tithe, ache, lathe, and cache were included, but not words such as taste, scarce, flange, false, dense, rosette, sledge, or immense. Actually there were only six words in the study which had consonant digraphs. These did not affect the results. However, the decision to omit other double consonants greatly affected the findings.

A final e was defined as the single-vowel e, never a vowel-pair.

#### Procedure

Hanna, Hanna, Hodges, and Rudorf in 1966 published a volume titled Phoneme-Grapheme Correspondences as Cues to Spelling Improvement. In it they reported the results of their computerized examination of 17,310 words: 15,284 words selected from Part I of the Thorndike-Lorge Teacher's Word Book of 30,000 Words plus 2,026 words selected from the Merriam-Webster's New Collegiate Dictionary, sixth edition, "Which were considered to be relevant to a study of a 'common core' vocabulary but had not been available from Part I of the Thorndike-Lorge word list" (Hanna, et al., 1966, pp. 12-13.) The authors of the Hanna, et al., study were concerned with furthering knowledge about spelling by examining phoneme-grapheme relationships.

The purpose of the present study is to further knowledge about reading, specifically about the phonic situation. To do so, it is necessary to look at grapheme to phoneme relationships. The procedure is the reverse of that used by Hanna, et al. Using as source materials the findings of Hanna, et al., and reversing them to "grapheme to phoneme" relationships, the author of the present study was able to classify the sounds each of the single-vowel graphemes represented in the 17,310 words examined.

## Results

The grapheme-phoneme relationships for each single-vowel grapheme in this position were examined. In Table 1 the findings are presented. In the Phonemic-Behavior columns, the long vowel and long vowel before an r for each grapheme (when available) are grouped together, as well as the short vowel and short vowel before an r.

In Table 2 the data are presented according to per cent of occurrence of the two most common phonemes for each single-vowel grapheme.

In Table 3 data are presented in frequency of occurrence form for the same phonemes included in Table 2. Also the total frequency for each vowel grapheme is recorded.

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Insert Tables 1, 2, and 3 here

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### Conclusions

Examination of the data indicates that the generalization examined is more valid for some vowels than it is for others. For a, g, i, o, u, and y, it reaches the utility level of 78.9, 67.4, 61.1, 85.6, 78.3, and 100 per cent, respectively. Thus, if we use 75 per cent as a minimum indicator of usefulness, the generalization, "If a word ends in a vowel-consonant-e, the vowel is long and the e is silent" is adequate if the vowel happens to be an a, o, u, or y. It is not adequate if the vowel is an e or i. Using the total sample, which consisted of 2,715 words, the utility level of this generalization is 73.7 per cent, much higher than was reported in the studies cited at the beginning of this article. This difference is due to the definition of the sample of words.

Another generalization worthy of examination is, "If a word ends in vowel-consonant-e, the e is silent, and the vowel may be long or short." For the vowels, a, e, i, o, u, and y, this generalization reaches the following utility levels: 80.9, 71.3, 94.9, 85.6, 78.3, and 100 per cent, respectively. This generalization reaches a minimum of a 75 per cent utility level for all vowels except e. It is an especially good generalization for i, but it

does not substantially increase the level for any other vowel.

Using the total sample of words, the utility level of this generalization is 86.6 per cent.

#### Further analysis of sample words

Further examination of the sample words in the groups which composed the three largest exceptions to the commonly taught generalization led to some interesting findings. These three groups were (1) a-e = ɪ, which accounted for 18 per cent of the words in the a-e group, (2) e-e = ʌ, which accounted for 26 per cent of the words in the e-e group, (3) i-e = ɪ, which accounted for 33.8 per cent of the i-e group.

#### a-e = ɪ

There were 176 words in the a-e = ɪ group. Without exception, these words were two or more syllables long, and every word fell into one of the following three categories: -ace, -age, -ate. Examples of such words are: furnace, populace, surface, adage, anchorage, baggage, damage, homage, passage, affectionate, confederate, illigitimate, obstinate, private, temperate. The final e in the first two groups may serve as a cue to the soft c or soft g, as it does not serve as a cue to the vowel sound. In general, the words

in all three of these groups are probably not important in a primary reading program. Teaching the common generalization will not produce problems at the primary level with a-e words. Later, perhaps these three groups could be taught as groups of exceptions.

e-e =  $\tilde{a}$

The vowel e appears to be the non-conformist. E in this position represents its <sup>own</sup> long sound or long sound before an r 67.4 per cent of the time. It represents a long a before an r 26 per cent of the time. The following are examples of words in which are exceptions: there, where, ere. These are the only root words in which e in this position has this sound, but the roots appear in 30 compounds in the sample (e.g., everywhere, anywhere, nowhere, thereby, therefore, etc.) If we were to count these as three words instead of 33, we would have a total sample of words ending in e-e of 99 words, and the utility level of our commonly taught generalization would be 87 per cent for the vowel e. The commonly taught generalization for the total sample would be 74.5 per cent.

i-e =  $\tilde{i}$

In the i-e =  $\tilde{i}$  group there were 301 words. Except for the two words live and give all of these words were at least two syllables long. A total of 182 of these words ended in -ive

(135 of these were -tive words).

Most of these words are not simple words, i.e., words found at the primary level. They might be taught later as a specific type of exception. Such words as the following might be included: captive, aggressive, massive, distinctive, creative, festive, fugitive, relative, etc.

#### Implications for teaching

From the sample of words used in the present study, it appears that the generalization, "When a word ends in a vowel-consonant-e, the e is silent, and the vowel has its own long sound," is quite satisfactory for use in a phonic program. It must be noted that the vowel is defined as a single-vowel, never a vowel-pair. Also the consonant is defined as a single-consonant (or a consonant digraph - sh, ph, th, ch), never a double consonant or a consonant blend. The final e is a single e.

The following is a list of primary level words which are exceptions to the above generalization. These words might be taught as sight words in the primary grades. These are the only common words which are exceptions to the above generalization. (A common word is defined here as a word which appears at least 50 times per million running words according to Thorndike and Lorge's

Teacher's Word Book of 30,000 Words. These are the words which Thorndike and Lorge consider to be at the primary level (1944, p.xi)

a-e: have; are; purchase; average, courage, manage, message, passage,  
village, advantage; surface, palace; senate, separate.

e-e: were; there, where; college

i-e: live, give, office, active, notice, native, justice, practice,  
service, promise, examine, favorite, determine, opposite,  
representative; machine, magazine, police, automobile; engine

o-e: purpose, welcome; lose, improve, move, movement; remove,  
whose; gone; above, come, become, done, love, lovely, none,  
some, something, sometimes, somewhat, somewhere, ~~one~~.

u-e: rule, conclude, include; measure, pleasure, treasure; sure,  
assure

It would seem advisable to teach groups of exceptions  
(a-e =  $\checkmark$  and i-e =  $\checkmark$ ) at a later time, when the children begin to  
run into these exceptions in their reading materials.

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Table 1 Frequency and per cent of occurrence of each phoneme for each single-vowel grapheme in a final vowel-consonant-e position.

| Grapheme |           |                           | Phonemic Behavior |           |          |
|----------|-----------|---------------------------|-------------------|-----------|----------|
| Name     | Frequency | Pronun-<br>ciation<br>Key | Example           | Frequency | Per Cent |
| a-e      | 928       | [ā]                       | [cake]            | [685]     | [73.8]   |
|          |           | [ã]                       | [care]            | [47]      | [5.1]    |
|          |           | ɪ                         | savage            | 176       | 18.0     |
|          |           | [ä]                       | [have]            | [9]       | [1.0]    |
|          |           | [ä]                       | [are]             | [9]       | [1.0]    |
|          |           | ə                         | pirate            | 2         | 0.2      |
| e-e      | 129       | [ē]                       | [these]           | [60]      | [46.5]   |
|          |           | [ɛ]                       | [here]            | [27]      | [20.9]   |
|          |           | ẽ                         | there             | 33        | 26.0     |
|          |           | ẽ                         | college           | 5         | 3.9      |
|          |           | ā                         | fete              | 2         | 1.6      |
|          |           | û                         | were              | 1         | 1.0      |
|          |           | ĩ                         | privilege         | 1         | 1.0      |
| i-e      | 890       | ĩ                         | glide             | 544       | 61.1     |
|          |           | ĩ                         | office            | 301       | 33.8     |
|          |           | ĩ                         | marine            | 39        | 4.4      |
|          |           | ə                         | engine            | 6         | 0.7      |

Table 1 (continued)

| Grapheme |           |                           | Phonemic Behavior |           |          |
|----------|-----------|---------------------------|-------------------|-----------|----------|
| Name     | Frequency | Pronun-<br>ciation<br>Key | Example           | Frequency | Per Cent |
| o-e      | 422       | o                         | hope              | 361       | 85.6     |
|          |           | u                         | glove             | 25        | 5.9      |
|          |           | ə                         | noiscme           | 21        | 5.0      |
|          |           | oo                        | whose             | 11        | 2.6      |
|          |           | oɪ                        | gone              | 4         | 0.9      |
| u-e      | 323       | u                         | fuse              | 254       | 78.3     |
|          |           | oo                        | chute             | 34        | 10.5     |
|          |           | ɛ                         | azure             | 23        | 7.1      |
|          |           | oo                        | sure              | 11        | 3.4      |
|          |           | ə                         | ferrule           | 1         | 0.3      |
| y-e      | 23        | i                         | rhyme             | 23        | 100.0    |
| ɛv-e     | 2715      | v̄ or v̄r                 |                   | 2001      | 73.7     |
|          |           | v̇ or v̇r                 |                   | 349       | 12.9     |

Table 2 Per Cent of occurrence of the two most common phonemes for each single-vowel grapheme in a final vowel-consonant-e position.

| Grapheme | Per Cent |    |    |    |    |     |
|----------|----------|----|----|----|----|-----|
|          | 0        | 20 | 40 | 60 | 80 | 100 |
| a-e      | ā or ã   |    |    |    |    | ĩ   |
| e-e      | ē or ē   |    |    |    |    | ã   |
| i-e      | ī        |    |    |    |    | ĩ   |
| o-e      | ō        |    |    |    |    | ũ   |
| u-e      | ū        |    |    |    |    | oo  |
| y-e      | ı        |    |    |    |    |     |

Table 3 Frequency of occurrence of the two most common phonemes and total frequency of occurrence of each single-vowel grapheme in a final vowel-consonant-e position

| Grapheme | Frequency |     |     |     |     |     |     |     |     |     |      |  |
|----------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
|          | 000       | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |  |
| a-e      | ā or ã    |     |     |     |     |     |     |     | ĩ   |     |      |  |
| e-e      | ē or ē    | ã   |     |     |     |     |     |     |     |     |      |  |
| i-e      | ī         |     |     |     |     | ĩ   |     |     |     |     |      |  |
| o-e      | ō         |     |     |     |     | ũ   |     |     |     |     |      |  |
| u-e      | ū         |     |     |     | oo  |     |     |     |     |     |      |  |
| y-e      | ī         |     |     |     |     |     |     |     |     |     |      |  |